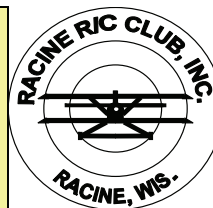




THE FLIGHTLINE



AMA CLUB 668

SINCE 1968

RACINE RADIO CONTROL CLUB INC

WE ARE ON THE WEB

WWW.RRCC.FREEHOMEPAGE.COM

DECEMBER 2008

Next Meeting December 14, 2008 at 6PM Mt Pl Village Hall

Club Officers

President

James Litwin
262-637-2787
jlitwin@wi.rr.com

Vice President

Jerry Rose
262-886-0509
thehandyman52@sbcglobal.net

Secretary/Treasurer

William Dollase
262-554-6217
Esall9@SBCGlobal.net

Field Chairman

Randy Ruddell
262-598-0447
rruddell@wi.rr.com

Safety Officer

Jerry Armantrout
262-633-4585
Jerry@Armantrout.us

Tractor Chairman

Eric Armantrout
262-884-4675
Ericandlaura@Armantrout.us

Compost Director

Bruce Rowland
262-633-5254
tacit@wi.rr.com

Webmaster

Paul Willems
262-619-4119
pwillems2@yahoo.com

Newsletter Editor

Dennis Vollrath
262-639-6362
vollrathd@yahoo.com

Minutes of the November 16th, 2008 Meeting:

The meeting was called to order at 6 PM by President Jim Litwin. There were no guests or new members present at this meeting. It was noted that the compost site would be open the day before Thanksgiving, Wednesday, November 26th. (this would be the last day the club would have to staff the site in 2008).

REPORTS:

PRESIDENT: Jim Litwin said that the Handbook would be updated to reflect the changes in the rules and by-laws voted on at the October meeting.

Jim reported on a burglary at our shelter. It is a story too long to recount here, but a number of individuals have been arrested. Thanks to local law enforcement agencies who are going to monitor our location, we expect that the field will not be as attractive a meeting place as it once was for those persons who have no legitimate business there.

VICE-PRESIDENT: Jerry Rose was not present. Jim reported that Jerry attended the Milwaukee Association meeting and we received a check to cover a portion of the cost of spreading gravel around the shelter. Our club was also recognized for co-operating with other clubs and participation in the annual January Auction.

SECRETARY/TREASURER: Bill Dollase reported the club Bank Balance. Membership remains at 75. 2009 Membership dues can be paid either at the meeting or by mailing payment to Bill Dollase.

Dues details will be determined in the "New Business" section of this meeting. Remember, AMA membership is a requirement of membership in our club.

SAFETY CHAIRMAN: Jerry Armantrout reminded the members that it is wise to use the "hot glove" when pouring the hot water to make coffee at the shelter.

FIELD CHAIRMAN: Randy Ruddell, who suffered a sort of "relapse" regarding his injured foot is now back to wearing a boot. Randy thanked all who helped in spreading the gravel around the shelter and replacing the fence that had been removed to provide access for the

Bobcat.

NEWSLETTER EDITOR: Dennis Vollrath explained a glitch that had occurred in the distribution (via the internet Yahoo Mail System) of the Newsletter. (Dennis put on a PowerPoint presentation on high-powered electrics for the MARCS club recently. This would be a good subject for a future meeting.)

TRACTOR CHAIRMAN: Eric Armantrout reported that the water had been drained from the rollers and the other equipment had been winterized. Batteries removed, etc. We are done mowing the field this year.

COMPOST SITE DIRECTOR: Bruce Rowland reported that there are still two more weeks of compost staffing to be performed. Last day, November 26th. We have had excellent co-operation from the membership and no one failed their assignment. A New Schedule is available, so now is the time to pick your preferred compost duty date. Bruce noted that there are 33 weeks in the year to staff the compost site.

OLD BUSINESS: None

NEW BUSINESS: Jim Litwin, having met with the Parks Development Director, reported that the Village is seeking sites for R-C Cars, Frisbee Golf, Gauge railroads, etc., but that none of these activities will affect our location. Jim made the point that we need fly-over area, and we cannot fly over people engaged in other activities.

A Motion was made and passed setting the 2009 dues at the same amount as the 2008 dues. That is: \$60 for a REGULAR member. (21-65). \$30 for SENIOR member. (over 65). \$1.00 for a JUNIOR member, (under 21, if attending school). Payment, made out to the RACINE RC CLUB, may be mailed to:

Bill Dollase
3335 Ascot Drive
Racine, WI 53406.

If you are a new member, please fill out the Application form available on the internet at:

rcc.freehomepage.com

("sign-up page", in menu on left hand side of screen). AMA membership is a requirement. Membership maybe renewed at club meetings. Check cash, or Money Order.

If there should be a major mechanical failure of the field maintenance equipment, we will have to pay for it out of our surplus. If there is no great expense, then our yearly dues income supports our picnics, fun fly's, and minor maintenance and improvements.

-
Elections of officers will be held at the December meeting. The present board of officers is up for election. Anyone wishing to run for a particular office or wishing to make a nomination should contact President Jim Litwin before the December meeting.

NEW PILOTS: None

SHOW & TELL:

Jerry Armantrout demonstrated a couple of electric models. 4 Grams ea. A fixed wing and a helicopter. These are really indoor models that can be flown inside a living room. The fixed wing had elevator, rudder, and aileron control.

Dennis Vollrath passed around for inspection a D.C. "Clamp On" ammeter. This is a much easier way to measure current in the electrics as the wiring does not have to be opened at any point to insert an ammeter. Note that most clamp on ammeters do NOT measure DC current, since these clamp on ammeters are a form of an AC current transformer design. This AC-DC clamp on Ammeter is available as Sears item #82369 for about \$60.00. This unit also includes a thermocouple temperature measuring sensor that can measure temperatures up to 500 degrees F, such as cylinder head temperatures and so on. The actual sensor is very small, about the size of a pin head.

Our next meeting will be held the 2ND SUNDAY of December (Dec. 14th). Items on the agenda will include election of officers. The new gate combination, which is shown on the back of the 2009 membership cards, will be effective March 1, 2009.

A motion was made and seconded to close the meeting.

(Our Winter meetings are held at the Mt. Pleasant Village Hall, located at the intersection of Highways 31 & 11. 6 PM.)

JIM'S CORNER

Well, winter is here and the snow is flying. That means the guy's that fly in the winter with the amphibious planes will soon be at it.

This month's club meeting is a week earlier due to Christmas, so our next meeting will be on Sunday, December 14th, at 6 PM at the Village Hall.

At this month's meeting the main topic of business is the election of officers. As of this time, the current officers have all agreed to run again, and we have not received nominations from anyone else. If you are interested or know of someone who is interested in becoming an officer in the club, let one of the board members know, or be at the meeting and get a nomination in so you or that someone else can be considered at the time of the vote.

I know this is a busy time of the year, with Thanksgiving having just been just last week, Christmas coming in a few short weeks, and everything else that is going on, but consider checking over your planes and equipment as you put them away for winter storage. I know that I found some things to repair on my planes, and replaced a few charge cords on the battery chargers.

The annual Milwaukee Area RC Auction & Swap meet will be held on Sunday January 4th from 9: AM – 3:00 PM at the Waukesha Expo Center. Again this year, our club will be given \$10 for each member that volunteers to work a 2 hour shift at the Swap meet. Shifts start at 7:00 AM. They run 7 AM – 9 AM; 9 AM - 11 AM; 11 AM - 1 PM; and 1 PM – 3 PM. If you are interested in helping out, please contact me ASAP so I can get your name submitted. See the Swap Meet / Auction flyer elsewhere in this Newsletter.

If you can't make it to the meeting next week, let me take this opportunity to wish you all a Very Merry Christmas, and a Happy New Year!!

Jim Litwin
President

DENNYS STUFF

I took my laptop PC to the RRCC club house recently to update the software on the RRCC wind anemometer. It now reads from zero to 60 MPH, which should be sufficient for most needs. The 12 VDC battery was measured at 11.95 VDC, so it should last perhaps a year before replacement.

I've often wondered about just how much force is involved in the typical propeller due to centrifugal forces while the engine/motor is running.

The formula for centrifugal acceleration is the velocity multiplied by the velocity divided by the radius of the propeller. (That's velocity squared, divided by the radius) If the velocity is in feet per second, the

radius would also be in feet. The resulting answer will be in feet per second per second.

Let's see, a typical 75 class two stroke glow engine will turn a 13 inch propeller at about 12,000 RPM.

When you run the numbers, the typical 70 class engine will result in an acceleration of some 800,000 feet per second per second. The earth's acceleration is 32 Ft/Sec/Sec.

What all this means is, a typical propeller will have centrifugal forces of well over 500 pounds on each blade at 12,000 RPM.

If you ever wanted to know why a propeller that has a nick or crack should **NEVER** be put on an engine or high performance electric model, this should answer that question!

Two issues ago, I placed a chart on various batteries in the newsletter. I'll cover that chart in detail on the January Newsletter.

More on Microwave radio systems.

Both JR/Spektrum and Futaba have come up with 2.4 Ghz (Gigahertz) microwave radio systems. More and more of the large model airplane meets are finding out that the pilots are going to these radios for their expensive scale and or competition models.

Note that other manufacturers are releasing their versions of these microwave radios. Information on the Internet has strongly suggested that these other manufacturers should be investigated on the Internet before purchase. One or two of these off brand 2.4 Ghz Microwave radios have caused repeated crashes with many different modelers, due to poor design and/or software problems.

A lot of speculation exists on just what JR/Spektrum and Futaba are doing with their radio signals. As it turns out, these radio manufacturers are bound and restricted by the international rules concerning radio waves on the 2.4 Ghz radio frequencies. If you really want to see a lot of unintelligible stuff, try googling "Spread Spectrum" on the Internet.

As previously mentioned in my "How it works" radio system articles, the Futaba radio system uses a "**Frequency Hopping**" technology. This technology goes back a long time, back to a guy named Tesla back in the early part of the 1900's. That was long before anyone could actually design transmitters that could transmit radio waves. This Frequency Hopping technology compares to a modeler with a standard 72 Mhz transmitter, with a whole box of 60 crystals. Frequency hopping resembles taking that box of crystals, and plugging them into the transmitter, one at a

time in some specific order. (Say channels 11, 15, 18, 12, 19 and so on) Now, do this swapping 1000 times a second! And, you got to do the same thing with the receiver, using the same specific frequency order (Channels 11, 15, 18, 12, 19). It was not until the late 1940's or early 1950's before this Frequency Hopping process became feasible with the electronic equipment available at that time. During this period of time, the military version of this radio equipment used three six foot tall relay racks that probably weighed in at 500 pounds or so. Now we've got this system in a receiver that weighs in at a fraction of an ounce! That receiver could be dropped inside a typical 1/4 scale model and disappear.

The advantages of Frequency Hopping Spread Spectrum radios is that designing this sort of system is comparatively easy to do. It's negatives are that it is some 10 times slower in communication than the JR/Spektrum systems. We'll get back to that comment later.

Direct Sequence Spread Spectrum (DSSS) radios such as JR/Spektrum radios use a completely different technology. This technology was designed in the mid 1990's and was made possible with the use of the very high performance low cost microcontrollers that exist today. They are used in everything from your cell phone, to the digital displays in your microwave oven, to your digital alarm clocks, dishwashers you name it. Why, they are cheaper and more reliable than the old mechanical devices they replace.

Various Internet sites have indicated that the DSSS system is now accounting for some 80% of new products such as cell phones, computer wireless communication, cordless 2.4 Ghz home telephones, GPS systems and so forth.

These DSSS radios still transmit on some basic frequency, but the JR/Spektrum radios transmit on two different frequencies, alternating very rapidly between the two. Kind of like a primary/backup frequency system.

What happens next gets really messy, really quick. We've covered the original 72 Mhz radios and how we modulate their transmitters, either by AM or FM modulation. What was not mentioned in this process, is that taking a fixed frequency such as channel 31 at 72.410 Mhz, and mixing that 72.410 Mhz frequency with a modulation signal causes that 72.410 Mhz frequency to "spread out" to a wider band. The more information you send per second the wider the bandwidth of the transmitted signal. Problem is,

these radios were limited to a 5000 cycle per second bandwidth by the **Federal Communications Commission (FCC) rules**. That's what was involved with the narrow band radios we've been using for the past twenty years or so. So, these 72 Mhz radios had severely limited ability to send a lot of information over a short period of time. Bottom line, the functions of these newer 2.4 Ghz radios such as "model match" was not possible in the 72 Mhz radios.

The JR/Spektrum radios can use a radio frequency bandwidth of several million cycles per second or more, and stay within the FCC rules. So, in theory at least, the JR/Spektrum radios could have 1000 or more channels, as compared to the typical RC radio we use that has up to 10 or 12 channels or so. (Wow, imagine trying to operate a transmitter with 1000 joy sticks! Even worst, imagine trying to pick the danged thing up.)

We mentioned that the Futaba radios had limited capacity in this area. Well, they can only handle 100 channels or so. (That's not really an issue!)

So, the JR/Spektrum radios are taking the same information from your transmitters joy sticks and are mixing this with **another** much higher frequency binary sequence of information. This higher frequency is typically 100 times that of the basic information being sent from your transmitters joy sticks. The effect of this higher frequency mixing is, it spreads the transmitted Radio Frequency over a far wider portion of the radio waves. But, in order for the receiver to receive this signal, it has to have the **SAME HIGHER FREQUENCY BINARY SEQUENCE OF INFORMATION**.

That's kind of like an electronic digital combination lock being sent out from the transmitter to the receiver. The magic part of this, is if you have two receivers, one bound to the transmitter, one not bound, the bound receiver will receive the transmitted signal and will run your servo's. The UNBOUND receiver, (and any other receiver for that matter) will receive the transmitted signal as noise or static, and will not receive anything from that transmitter.

In fact, if you tried to listen to the JR/Spektrum radio signals by some high performance ham radio receiver, all you would hear would be static.

Note that this Spread Spectrum stuff does NOT involve how the Radio Frequency itself is sent. That can be by AM, FM, Single Side Band, Double Side band or what ever.

Many articles on the Internet have indicated that these Spread Spectrum signals simply do not interfere with each other by nature of design. That's been proven by tests

GREENFIELD NEWS & HOBBY

YOUR R/C HEADQUARTERS

6815 WEST LAYTON AVENUE
GREENFIELD, WISCONSIN 53220
(414) 281-1800

VISIT OUR NEW STORE

WE CARRY BRAND
NAME R/C KITS,
ACCESSORIES &
MODELING TOOLS FOR
ALL YOUR R/C NEEDS

OPEN 7 DAYS A WEEK
MON – FRI 10 – 9 PM
SATURDAY 10 – 5 PM
SUNDAY 12 – 5 PM

conducted by JR/Spektrum on their advertisements in our RC magazines.

So again, which is better, JR/Spektrum or Futaba? The information on the Internet on their respective designs indicate that the performance and reliability of the Frequency Hopping versus the Direct Sequence Spread Spectrum radios is pretty much a draw. They both perform well. The DSSS system is a newer design, 40 some odd years newer than the Frequency Hopping radios. Doesn't mean its better.

If there is an issue to consider, it's the "Model Match design feature of the JR/Spektrum radios.

This model match process consists of both your transmitter, and its unique internal digital serial number, and your receiver and its unique internal digital serial number. Add to that, the transmitter also transmits a code to the receiver relating which model is actively being used in your transmitters list of models programmed into the unit. The process of binding your transmitter to your receiver involves matching up the spread spectrum "combination lock" information of both the transmitter and receiver. And, matching up the selected model currently being flown from the list of models available on your transmitter.

If the receiver finds a mismatch, from what was programmed during the "Binding" process, it simply doesn't respond.

From what I can tell, only JR/Spektrum has this model match feature, something to consider if you are planning on buying a microwave radio for next year.

Interesting enough, Spektrum now has a transmitter/receiver only, no servos, or batteries for about \$100. It's limited to one model at a time, but price is coming down on these units.

As you can tell, a lot of stuff is happening under the hood of these Microwave radios. Even still, what they are doing is pretty simple, compared to what is happening under the hood of your typical cell phone.

(I found a document on the Internet about a college student in Europe that built up a DSSS spread Spectrum system from scratch as a learning school project. It was built with out using microcontroller computer chips. This system got pretty large in physical size and would not fit in an average 1/4 scale model.)

See you at the December 14th meeting!

RC AUCTION & SWAP SHOP

31st ANNUAL

**SUNDAY
JANUARY 4th, 2009**

MILWAUKEE, WISCONSIN



Sponsored by
MILWAUKEE R/C ASSOCIATION



Chapter #7



**ADMISSION: \$5.00 ADULTS
(UNDER 16 FREE)**

SWAP SHOP: 9:00-3:00
No selling or general admission before 9:00

AUCTION
Every 30 minutes in 15 minute segments, from 12 noon until all items are auctioned.

TABLE FEES
All tables are \$20.00 ea. plus \$5.00 admission per person. 2 admissions for the first table and 1 admission for each additional table. No exceptions. Please call Laurie Jones to reserve your tables - 414-461-6013.



WAUKESHA COUNTY EXPO CENTER
(South of Waukesha County Airport)
N1 W24848 NORTHVIEW RD.
(262) 548-7200 TAKE I-94 to CTH J.
SOUTH ON J. ONE MILE TO NORTHVIEW

FOOD - BEVERAGES - AMPLE FREE PARKING
RAFFLE at 1:00 p.m.
(or immediately after auction)

MEMBER CLUBS:

ABC/RC; Astro Wings of Wis.; Dairyland Aero Miniature Modelers; Lakeland R/C; Milwaukee Area Radio Kontrol Society (MARKS) Club; Milwaukee Flying Aces; Flying Electrons, Inc.; Pebble Creek Flyers, Inc.; Racine RC Club, Inc.; Rainbow AeroModelers Society (RAMS Club); Sea Turkeys Assoc. Racing Team (START Club); SE Wis. Area Rotary Modelers; Sky Ranch Flyers;
AFFILIATE CLUBS: Bong Eagles; Circlemasters Flying Club, IPMS; Billy Mitchell Chapter; IPMS; Richard I. Bong Chapter.

RACINE R/C CLUB 2008 CALENDAR

MAY

Sunday 18th 1:00 PM Monthly Mtg - Flying Field

JUNE

Sunday 8th 1:00 PM Monthly Mtg - Flying Field

JULY

Sunday 13th Noon - 3 PM Club Picnic (No Meeting this month)

Sunday 20th Club Fun Fly

AUGUST

Sunday 17th 1:00 PM Monthly Mtg - Flying Field

SEPTEMBER

Monday 1st *Deadline for submission of proposed rule changes*

Sunday 21st 1:00 PM Monthly Mtg - Flying Field

1st Publication of Proposed Rule Changes

OCTOBER

Sunday 19th 6:00 PM Monthly Mtg - Mt. Pl. Village Hall

Vote on Proposed Rule Changes

NOVEMBER

Sunday 16th 6:00 PM Monthly Mtg - Mt. Pl. Village Hall

Election of Officers

Wednesday 19th Noon Last day of Compost Site duty for the year

DECEMBER

Sunday 14th 6:00 PM Monthly Mtg - Mt. Pl. Village Hall



Photos taken at several of the S.E. Wisconsin area fun flys in the summer of 2008



These models were pretty much hanger queens because of the severe cross wind at this flying field.

